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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,336	07/24/2003	Justin K. Brask	ITL.1022US (P16709)	1387

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EXAMINER	
NADAV, ORI	

ART UNIT	PAPER NUMBER
2811	

DATE MAILED: 03/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/626,336	BRASK ET AL.	
	Examiner	Art Unit	
	ori nadav	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 7-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adan (5,198,379) in view of Mizutani et al. (Jp 2001123293A).

Adan teaches in figure 4 an oxide layer 2A formed directly on a semiconductor substrate, and an oxide layer 4A formed on a bottom gate 6A.

Adan does not teach forming the oxide layers by a method comprising forming a metallic precursor and then oxidizing said metallic precursor in a liquid oxidizer.

Mizutani et al. teach in figure 1 and related text a method of forming an oxide layer comprising: forming a metallic precursor 3, 4 directly on a substrate 1 and oxidizing said metallic precursor in a liquid oxidizer (abstract).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form Adan's oxide layers by Mizutani et al.'s method which comprises forming a metallic precursor and then oxidizing said metallic precursor in a

liquid oxidizer, in order to provide better insulation to the gate of the device. The combination is motivated by the teachings of Mizutani et al. who point out the advantages of using his oxide layer to protect the gate in a TFT device (paragraph 31). Note that forming Mizutani et al.'s oxide layer in Adan's device meets the claimed limitation of forming a metallic precursor directly on a semiconductor substrate.

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. and Adan, as applied to claims 7 and 10 above, and further in view of Yao (6,679,996).

Regarding claim 11, Mizutani et al. and Adan teach substantially the entire claimed structure, as applied to claim 7 above, except forming the metal oxide dielectric of hafnium, zirconium, or tantalum.

Yao teaches in figure 1A forming the metal oxide dielectric 3 of hafnium, zirconium, or tantalum (column 4, lines 18-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the metal oxide dielectric of hafnium, zirconium, or tantalum, in Mizutani et al. and Adan's device, in order to use the appropriate material for the application in hand. Note that substitution of materials is not patentable even when the substitution is new and useful. Safetran Systems Corp. v. Federal Sign & Signal Corp. (DC NIII, 1981) 215 USPQ 979.

Regarding claim 9, Yao teaches using a liquid oxidizer includes using an oxidizer in an aqueous solution (column 3, line 24).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. and Adan, as applied to claims 7 and 10 above, and further in view of Garcia (5,836,150).

Mizutani et al. and Adan teach substantially the entire claimed structure, as applied to claim 7 above, except using physical vapor deposition to deposit metal atoms.

Garcia teaches using physical vapor deposition or chemical vapor deposition to deposit metal atoms (column 4, lines 29-33).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use physical vapor deposition to deposit metal atoms, in Mizutani et al. and Adan's device, in order to use the most suitable conventional vapor deposition for the application in hand.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mizutani et al. and Adan, as applied to claims 7 and 10 above, and further in view of Tsuzumitani et al. (6,645,807).

Mizutani et al. and Adan teach substantially the entire claimed structure, as applied to claim 7 above, except using a liquid oxidizer selected from the group including solutions of 03, H2O2 and organic peroxide.

Tsuzumitani et al. teach in figure 1 and related text forming a metal oxide dielectric 7A using a liquid oxidizer selected from the group including solutions of 03, H2O2 and organic peroxide (column 7, lines 42-45).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a liquid oxidizer selected from the group including solutions of 03, H2O2 and organic peroxide, in Mizutani et al. and Adan's device, in order to use the appropriate material for the application in hand. Note that substitution of materials is not patentable even when the substitution is new and useful. Safetran Systems Corp. v. Federal Sign & Signal Corp. (DC NIII, 1981) 215 USPQ 979.

Response to Arguments

Applicant's arguments with respect to claims 7-13 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

O.N.
3/23/05

ORI NADAV
PRIMARY EXAMINER
TECHNOLOGY CENTER 2800